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EVALUATION OF SOUTHERN PINE BEETLE INFESTATIONS ON THE HOMOCHITTO NATIONAL FOREST, MISSISSIPPI

by

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INTRODUCTION

During January 1976, the Forest Insect and Disease Management Group conducted an aerial survey and subsequent ground examination to determine the status of southern pine beetle on the Homochitto National Forest.

METHODS

Standard aerial sketch map survey[2/] and ground check procedures were used. Aerial coverage was 50 percent. Twenty-four spots, 12 on the Bude Ranger District, and 12 on the Homochitto Ranger District, were ground checked to determine the cause of tree mortality, proportion of spots and trees currently infested, volume of currently infested trees, and general condition of the beetle population.

TECHNICAL INFORMATION

Insect - Southern pine beetle, *Dendroctonus frontalis*, Zimm.

Hosts - The southern pine beetle will attack all species of southern yellow pine. However, loblolly pine, *Pinus taeda* L., and shortleaf pine, *P. echinata* Mill., are the preferred hosts.

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2/ Detection of forest pests in the Southeast. 1970. USDA, USFS, SA, S&PF, Div. of FPM, Pub. S&PF-7, Atlanta. Georgia.

Type of damage - Death of the tree is the result of cambial mining by the southern pine beetle as it constructs its gallery. The beetle also introduces blue stain fungi, *Ceratocystis* spp., which slow down or block conduction of water in the stem.

Life cycle of the beetle - The beetles attack in pairs and construct a winding gallery in the cambium. Eggs are deposited in niches along the sides of the galleries. The eggs hatch into whitish grubs that further mine the cambium and then construct cells in the bark for pupation. The callow adults then mine through the bark to emerge. The complete life cycle takes about a month during the summer and as many as seven generations may be produced in a year.

RESULTS AND DISCUSSION

Data from the aerial survey and ground check are summarized in Tables 1 and 2. These data indicate a high level of southern pine beetle activity on the Homochitto National Forest. Spots were well scattered over the Forest and ranged in size from one to 50 or more trees. A large proportion of spots and trees were infested. In addition, a comparison of data from this survey with data from previous surveys (Table 3) shows a large increase in beetle activity.

The condition of beetle broods appeared to be good. Clerid beetle larvae were observed in a high proportion of the trees examined. The overall effect of these and other parasites and predators on southern pine beetle populations is not known at the present time.

RECOMMENDATIONS

In our last evaluation report, No. 76-2-3, September 1975, we recommended that southern pine beetle suppression projects on both Ranger Districts of the Homochitto National Forest be terminated. This recommendation was based on a prolonged period of low beetle activity and the results of an aerial survey and ground check carried out in July 1975. Because of the increased activity found during the current evaluation, and the possible losses that could occur, suppression projects should be reopened on both Ranger Districts of the Homochitto National Forest as soon as possible. As before, emphasis should be placed on rapid salvage of infested trees in accordance with FSM 5250, R8 Supplement No. 8, and the Project Control Plan.

The Forest Insect and Disease Management Group will conduct the next evaluation of the Homochitto National Forest during the summer of 1976.

REFERENCES

Moore, L. M. and I. R. Ragenovich. 1975. Evaluation of southern pine beetle infestation on the Homochitto National Forest, Mississippi. USDA, USFS, SA, S&PF, FIDM Group Rept. No. 76-2-3.

Ragenovich, I. R. 1974. Evaluation of southern pine beetle infestations on the Homochitto National Forest, Mississippi. USDA, USFS, SA, S&PF, Forest Pest Mgmt. Group, Rept. No. 75-2-7.

Terry, J. R., J. F. Denniston, and I. R. Ragenovich. 1974. Evaluation of southern pine beetle infestations on the Homochitto National Forest, Mississippi, USDA, USFS, SA, S&PF, Forest Pest Mgmt. Group, Rept. No. 74-2-9.

Table 1. Summary of spot data from aerial survey, southern pine beetle evaluation Homochitto National Forest, Mississippi, January 1976[1/]

Ownership	Spot Size (Trees)[2/]						Average Multiple Tree-Spot Size
	Singles	2-5 Spots-Trees	6-20 Spots-Trees	21-50 Spots-Trees	51+ Spots-Trees	Total Spots-Trees	
Bude R. D.	516	304-976	232-2387	20-570	0-0	1027-4449	7.1
Homochitto R. D.	392	194-617	162-1855	22-627	0-0	770-3491	10.8
Total Homochitto N. F.	908	498-1593	394-4242	42-1197	0-0	1797-7940	7.5

1/ Includes both federal and non-federal land within Ranger District protection boundaries.

2/ Data corrected and expanded to 100 percent survey area coverage according to Aldrich et al. (1958).

Table 2. Summary of aerial and ground survey data, southern pine beetle evaluation, Homochitto National Forest, Mississippi, January 1976.[1/]

	Bude R. D.	Homochitto R. D.
1. Results compiled from data collected during the aerial phase of the evaluation:		
Survey type	50 percent sketch map	50 percent sketch map
Date of Survey	Jan. 14-15, 1976	Jan. 14-15, 1976
Total Acreage surveyed	188,407	185,090
Total susceptible host type acreage	126,232	124,010
Total number of spots within survey boundary	1,072	770
Spots per M acres of host type	8.5	6.2
Average spot size (trees)	4.2	4.5
Range of spot size (trees)	1-50	1-40
Reds and faders per M acres host type	35.2	28.2
2. Results compiled from data collected during the ground and aerial phase of the evaluation:		
Date of ground phase	Jan. 27-28, 1976	Jan. 28-29, 1976
Infested trees per M acres host type	69.2	45.3
Total number of infested trees	8,729	5,617
Infested green to infested red tree ratio	1.0:0.9	1.0:1.3
Total volume of infested pulp (CCF)	133	142
Total volume of infested sawtimber (MBF)	866	400
Percentage of spots infested	83	92

1/ Includes both federal and non-federal land with Ranger District protection boundaries.

Table 3. Southern pine beetle activity on Homochitto National Forest, Mississippi, May 1974 - Jan. 1976

	Bude R. D.	Homochitto R. D.
1. Spots per M acres of host type:		
May 1974	2.63	0.97
Oct. 1974	1.24	1.68
July 1975	1.35	1.34
Jan. 1976	8.5	6.2
2. Infested trees per M acres host type:		
May 1974	1.08	0.46
Oct. 1974	0.31	1.02
July 1975	1.28	1.10
Jan. 1976	69.2	45.3
3. Total number of spots within survey boundary:		
May 1974	332	118
Oct. 1974	156	208
July 1975	169	167
Jan. 1976	1,072	770